

WHAT IS CLAIMED IS:

1. A composition comprising a melt blend with improved
5 compatibility containing (a) a matrix material of about 45% to 94.5% by weight of a crystalline thermoplastic; (b) about 0.5% to 30% by weight of mineral filler and (c) about 5% to 25% by weight of an elastomer.
2. A composition according to claim 1, wherein the melt blend is
10 preferably (a) a crystalline thermoplastic of about 90% to 85% weight % (b) about 5% to 10% of mineral filler by weight and (c) about 5% to 10% of the elastomer.
3. A composition according to claim 1 or 2, wherein the
15 crystalline thermoplastic is a polyacetal.
4. A composition according to claim 1 or 2, wherein the elastomer comprises thermoplastic polyurethane (TPU), polyether polyester thermoplastic or soft ethylenic polymers.
20
5. A composition according to claim 4, wherein the soft ethylenic polymers comprises a ethylene vinyl acetate (EVA), ethylene methyl acrylate (EMA), ethylene butyl acrylate glycidolmethacrylate (EBAGMA) or other soft ethylenic polymers.
25
6. A composition according to claim 4, wherein the soft ethylenic polymers are copolymers, terpolymers or tetrapolymers.
7. A composition according to claim 1 or 2, wherein the mineral
30 filler is selected from the group consisting of calcium carbonate (CaCO_3), oxides, sulfates, titanates, kaolin clay, silicates, magnesium hydroxide, carbon black and combinations thereof.
8. A composition according to claim 7, wherein the oxides are
35 selected from the group consisting of aluminum oxides, silicon oxides, and titanium dioxide (TiO_2).

9. A composition according to claim 7, wherein the sulfates are barium sulfate.

10. A composition according to claim 1, wherein the mineral filler
5 is CaCO₃ or TiO₂.

11. A composition according to claim 1, wherein the mineral filler is preferably CaCO₃.

10 12. A composition according to claim 1, wherein the matrix material is an acetal copolymer.

13. A composition according to claim 1, wherein the matrix material is an acetal homopolymer.

15 14. A composition according to claim 1 or 2, wherein said mineral filler contains a coating, said coating being a non-aromatic organic acid, a salt, ester, ether, epoxy, or a mixture thereof.

20 15. A composition according to claim 1, wherein the melt blend is preferably (a) a crystalline thermoplastic of about 90% - 60% by weight, wherein said crystalline thermoplastic comprises polyoxymethylene; (b) about 5% -20% by weight of mineral filler, wherein said mineral filler comprises CaCO₃ or TiO₂; and (c) about 5% - 20% by weight of the
25 elastomer, wherein said elastomer comprises thermoplastic polyurethane.

16. A composition according to claim 1, wherein the melt blend is more preferably (a) a crystalline thermoplastic of about 90% -75% by weight, wherein said crystalline thermoplastic is polyoxymethylene; (b)
30 about 5% -15% by weight of a mineral filler; wherein said mineral filler comprises CaCO₃ or TiO₂ and (c) about 5% -10% by weight of the elastomer, wherein said elastomer comprises thermoplastic polyurethane.

17. A composition according to claim 1 or 2, wherein the
35 crystalline thermoplastic comprises polystyrene, polyether ether ketone (PEEK), poly ether ketone ketone (PEKK) or polyphenylene sulfide (PPS).

18. A composition comprising a polyacetal polymer with about 0.5% - 30%, by weight of a mineral filler, the filler having an average equivalent spherical diameter in the range of 0.05 to less than 10 micrometers, said mineral filler being present in a ratio of about 0.1X to 3X by weight of the elastomer, the elastomer being in a ratio to the matrix resin of 5% to about 25% by weight.

19. A composition according to claim 18, wherein the average spherical diameter of said mineral filler is preferably in the range of 0.05 to less than 4 micrometers.

20. A composition according to claim 19, wherein the average spherical diameter of said mineral filler is most preferably in the range of 0.05 to 2 micrometers.

21. A composition according to claim 18 or 19 or 20, wherein said mineral filler is a single grade.

22. A composition according to claim 18 or 19 or 20, wherein said mineral filler is a blend of at least two grades.

23. A composition according to claim 21 or 22, wherein said mineral filler having a coating of a non-aromatic organic acid, a salt, ester, ether, epoxy, or a mixture thereof, at a concentration of at least 0.5% by weight of the mineral filler.

24. An article made from a composition according to one of claims 1-23.